

Application No.: 10/660,139

Docket No.: JCLA9793

**REMARKS****Present Status of the Application**

Claims 1-5 remain pending in the present application of which claim 1 has been amended and claim 2 has been canceled without prejudice or disclaimer for more explicitly describing the claimed invention. It is believed that no new matter adds by way of the amendments to claims or otherwise to the application. For at least the following reasons, Applicants respectfully submit claims 1, 3-5 are in proper condition for allowance and reconsideration of this application is respectfully requested.

**Discussion of the claim rejection under 35 USC 112**

*The Office Action rejected claims 1-5 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

In response thereto, Applicants would like to thank the Examiner for pointing out the informality and accordingly amended claim 1 and canceled claim 2. After entry of the amendments to claim 1, the above rejections can be overcome. Reconsideration is respectfully requested.

**Discussion of the claim rejection under 35 USC 102 and 35 U.S.C. 103**

*1. The Office Action rejected claims 1 and 5 under 35 USC 102(b) as being anticipated by Cattell et al. (US-6,180,351, hereinafter Cattell).*

Applicants respectfully disagree and traverse the above rejections as set forth below.

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Independent claim 1 is allowable for at least the reason that Cattell substantially fails to teach or disclose each and every features of claim 1. More specifically, Cattell substantially fails to teach or disclose a method of forming a biochip comprising at least a step of forming covering a surface of the micro-carrier with a silicon dioxide layer and reacting the silicon dioxide layer with 3-aminopropyltriethoxysilane to modify a surface of the silicon dioxide later into an aminated surface as required by the amended claim 1.

Instead, Cattell, at col. 3, lines 6-17, substantially discloses a method of generating an addressable array of chemical moieties on a substrate comprising obtaining information on a layout of the array (such as from a remote site or locally, for example from a local memory). An identifier corresponding to the array layout information is also obtained. The addressable array is fabricated on the substrate in accordance with the layout information. The identifier is applied to the substrate carrying the array (such as, for example, writing the identifier directly onto the substrate. Furthermore, Cattell substantially fails to even mention any surface treatment for modifying the surface of the substrate prior to forming the addressable array of chemical moieties, much less teaching on use of silicon dioxide layer and the 3-aminopropyltriethoxysilane. In other words, Cattell substantially fails to teach or disclose a method of forming a biochip comprising at least a step of forming covering a surface of the micro-carrier with a silicon dioxide layer and reacting the silicon dioxide layer with 3-aminopropyltriethoxysilane to modify a surface of the silicon dioxide later into an aminated surface as required by the amended claim 1. Accordingly, Cattell cannot possibly anticipate

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the claimed invention in this regard.

Thus, Cattell fails to teach each and every features of the proposed independent claim 1.

Claim 5, which depend from Claim 1 is also patentable over Cattell at least because of their dependency from an allowable base claim.

For at least the foregoing reasons, Applicants respectfully submit that claims 1 and 5 patently define over Cattell, and therefore should be allowed. Reconsideration and withdrawal of the above rejections is respectfully requested.

*2. The Office Action rejected claims 1 and 5 under 35 USC 102(b) as being anticipated by Nova et al. (US-5,874,214, hereinafter Nova).*

*3. The Office Action rejected claim 2 under 35 USC 103(a) as being unpatentable over Nova in view of Cozzette et al. (US-5,063,081, hereinafter Cozzette).*

*The Examiner stated that Nova substantially discloses a method of forming a biochip which is substantially similar to the claimed invention except for the surface modification procedure comprising covering the micro-carrier with a silicon dioxide layer and using the 3-aminopropyltriethoxysilane to modify the silicon dioxide surface of the micro-carrier to the animated surface. But relied upon Cozzette discloses a biosensor wherein a silicon substrate is layered with silicon dioxide, in order to provide a semipermeable solide film which promotes adhesion of subsequent layers of other materials, wherein a subsequent layer is biolayer that incorporates biologically active molecules that can be screen printed or dispensed on the solid phase, and wherein the biologically active molecule can be polypeptides. It would have been*

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*obvious at the time invention to modify the method of nova with a biosensor wherein a silicon substrate layered with silicon dioxide, as taught by Cozzette, in order to provide a non-conductive layer, and further modified with a silane layer, wherein the silane is 3-aminopropylethyoxysilane, as taught by Cozzette, in order to provide a semipermeable solid film which promotes adhesion of subsequent layers of biolayer of polypeptides. One of skilled in the art at the time of the present invention would have reasonable expectation of success in modifying a biochip with silicon dioxide and 3-aminopropylethyoxysilane, as taught by Cozzette, in the method of Nova, since Nova teaches matrix chips that can be made of silicon, and the silicon dioxide layer taught by Cozzette can be used to modify the silicon surfaces.*

Applicants respectfully disagree and traverse the above rejections as set forth below. Applicants respectfully submit that the subject matter of claim 2 has been substantially incorporated into claim 1. Independent claim 1, as amended, is allowable for at least the reason that Nova and Cozzette substantially fails to teach, suggest or disclose every features of the amended claim 1. More specifically, Nova and Cozzette substantially fails to teach, suggest or disclose a method of forming a biochip comprising at least a step of forming covering a surface of the micro-carrier with a silicon dioxide layer and reacting the silicon dioxide layer with 3-aminopropyltriethoxysilane to modify a surface of the silicon dioxide later into an aminated surface as required by the amended claim 1.

Instead, Cozzette substantially teaches, in Fig. 2, substantially discloses a substrate (20), a non-conductive layer of silicon dioxide (15) disposed on the substrate (15), a patterned

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titanium metal structures (10) disposed on the silicon dioxide (15), an iridium electrocatalyst layer (5) disposed on the patterned titanium metal structures (10), a permselective silane layer (6) disposed on the iridium electrocatalyst layer (5) and [a biolayer layer (7) disposed on a portion of the permselective silane layer (6) which is formed above the iridium electrocatalyst layer (5)]. In other words, Cozette substantially fails to teach or disclose a step of forming the biolayer on the animated layer of the silicon dioxide layer which is formed by the reaction between the silicon dioxide layer and the 3-aminopropyltriethoxysilane. Accordingly, Applicants respectfully submit that Nova and Cozzette fail to meet the claimed invention in this regard and therefore should be allowed.

Claim 5, which depend from Claim 1 is also patentable over Nova and Cozzette at least because of their dependency from an allowable base claim.

For at least the foregoing reasons, Applicants respectfully submit that claims 1 and 5 patently define over Nova and Cozzette, and therefore should be allowed. Reconsideration and withdrawal of the above rejections is respectfully requested.

*4. The Office Action rejected claims 3-4 under 35 USC 103(a) as being unpatentable over Nova in view of Wu et al. (US-5,922,161, hereinafter Wu).*

Applicants respectfully disagree and would like to point out hat even though the Examiner relied upon Wu for disclosing the polymeric materials, still Wu cannot cure the specific deficiencies of Nova for at least the reasons discussed above. Therefore, claims 3-4 also patently define over

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Nova and Wu for at least the same reasons discussed above. Reconsideration and withdrawal of the above rejections is respectfully requested.

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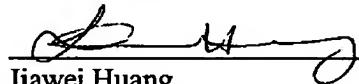
**CONCLUSION**

For at least the foregoing reasons, it is believed that all the pending claims 1-5 of the present application patently define over the prior art and are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,  
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